

Form PTO-1390 (Rev. 12-29-99) <b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>		US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  ATTORNEY'S DOCKET NO. <b>H 3624 PCT/US</b>
		U.S. APPLICATION NO. (if known see 37 CFR 1.5) <b>09/807664</b>
INTERNATIONAL APPLICATION NO. <b>PCT/EP99/07475</b>	INTERNATIONAL FILING DATE <b>October 6, 1999</b>	PRIORITY DATE CLAIMED <b>October 15, 1998</b>
<b>TITLE OF INVENTION</b> <b>SPINNING OIL FOR PRODUCING COMBED SLIVER</b>		
<b>APPLICANT(S) FOR DO/EO/US</b> <b>Wolfgang Becker, Raymond Mathis, Andreas Lippmann</b>		
Applicant herewith submits to the United States Designated/Elected Office (EO/DO/US) the following items and other information:		
1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371. 3. <input type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39 (1). <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)). a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). <b>(UNEXECUTED)</b> 10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).		
Items 11. to 16. below concern other document(s) or information included: 11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input type="checkbox"/> Other items or information:		
<b>"Express Mail Post Office to Addressee" service Mailing Label Number</b> <b><u>EL541613372US</u></b>		

U.S. Application No. (If known, see 37 CFR 1.5) <b>09/807664</b>	INTERNATIONAL APPLICATION NO. <b>PCT/EP99/07475</b>	ATTORNEY'S DOCKET NUMBER <b>H 3624 PCT/US</b>		
<p>17. <input checked="" type="checkbox"/> The following fees are submitted:</p> <p><b>BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):</b></p> <p>Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO..... <b>\$1,000.00</b></p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO..... <b>\$860.00</b></p> <p>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... <b>\$710.00</b></p> <p>International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... <b>\$690.00</b></p> <p>International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)..... <b>\$100.00</b></p>		CALCULATIONS PTO USE ONLY		
<b>ENTER APPROPRIATE BASIC FEE AMOUNT</b> =		\$ 860		
Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date 37 (CFR 1.492(e)).		\$ 0		
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total Claims	18 - 20 =	0	0 X \$18.00	\$ 0
Independent Claims	2 - 3 =	0	0 X \$80.00	\$ 0
Multiple dependent claims (s)(if applicable)		0	+ \$270.00	\$ 0
<b>TOTAL OF ABOVE CALCULATIONS</b> =		\$ 860		
Reduction of $\frac{1}{2}$ for filing by small entity, if applicable. A Small Entity Statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).		\$ 0		
<b>SUBTOTAL</b> =		\$ 860		
Processing fee of <b>\$130.00</b> for furnishing the English translation later the <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).		\$ 0		
<b>TOTAL NATIONAL FEE</b> =		\$ 860		
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property		\$ 0		
<b>TOTAL FEES ENCLOSED</b> =		\$ 860		
		Amount to be: refunded:	\$-----	
		charged:	\$ 860.00	
<p>a. <input type="checkbox"/> A check in the amount of \$ _____ to cover the above fees is enclosed.</p> <p>b. <input checked="" type="checkbox"/> Please charge my Deposit Account No. <u>50-1177</u> in the amount of <u>\$860.00</u> to cover the above fees. A triplicate copy of this sheet is enclosed. Order No. <u>01-0215</u>.</p> <p>c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>50-1177</u>. A triplicate copy of this sheet is enclosed.</p>				
<p><b>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.</b></p>				
SEND ALL CORRESPONDENCE TO:	Cognis Corporation, Law Dept. 2500 Renaissance Blvd., Suite 200 Gulph Mills, PA 19406			
 <b>SIGNATURE:</b> Aaron R. Ettelman NAME ATTORNEY FOR APPLICANT 42,516 REGISTRATION NUMBER				

"Express Mail" Mailing Label Number EL541613372US

PATENT  
Docket No. H 3624 PCT/US

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

RE: PCT/EP99/07475  
International Filing Date: October 6, 1999  
Priority Date Claimed: October 15, 1998  
Applicant: Becker et al.  
Title: SPINNING OIL FOR PRODUCING COMBED SLIVER  
Applicants' Reference: H 3624 PCT/US

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
Box PCT  
Washington, DC 20231

ATTN: DO/EO/US

Prior to the calculation of fees and examination of the above-identified national stage application pursuant to the accompanying submission under 35 U.S.C. §371, please amend the English translation of the International Application submitted herewith, without prejudice, as follows:

**In the Specification:**

Please amend the instant Specification, without prejudice, as follows:

Please delete all text above line 3, of page 1, and replace the deleted matter with the following new section headings and title of the invention:

**--TITLE OF THE INVENTION**

Lubricants for Spinning Combed Wool Slivers, and Methods of Using the Same

**BACKGROUND OF THE INVENTION--**

At page 3, between lines 19 and 20 thereof, please insert the following new section heading:

**--BRIEF SUMMARY OF THE INVENTION--**

**Preliminary Amendment of U.S. National Stage for International Application  
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At page 4, between lines 11 and 12 thereof, please add the following new section heading:

**--DETAILED DESCRIPTION OF THE INVENTION--**

At page 9, between lines 1 and 2, please add the following new paragraph:  
--What is claimed is:--.

On a separate, new page 11, following page 10, please add the following new section heading and paragraph containing an Abstract of the Disclosure:

**--ABSTRACT OF THE DISCLOSURE**

Lubrication of wool fibers for combed wool sliver production, via contacting of the wool fibers with a lubrication composition including a mixture of C<sub>6-22</sub> fatty acid methyl esters based on fatty acids selected from the group consisting of coconut fatty acids, palm kernel fatty acids, palm oil fatty acids, and mixtures thereof, is disclosed.--

**In the Claims:**

Please add new claims 11-28, as follows:

--11. (New) A process for lubricating wool for combed wool sliver production, said process comprising:

- (a) providing wool fiber to be lubricated;
- (b) providing a lubricant composition comprising a mixture of C<sub>6-22</sub> fatty acid methyl esters based on fatty acids selected from the group consisting of coconut fatty acids, palm kernel fatty acids, palm oil fatty acids, and mixtures thereof, and
- (c) contacting the wool fiber with the lubricant composition.--

--12. (New) The process according to claim 11, wherein the lubricant composition comprises from 50 to 95% by weight of the mixture of C<sub>6-22</sub> fatty acid methyl

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esters.--

--13. (New) The process according to claim 11, wherein the lubricant composition comprises from 60 to 80% by weight of the mixture of C<sub>6-22</sub> fatty acid methyl esters.--

--14. (New) The process according to claim 11, wherein the mixture of C<sub>6-22</sub> fatty acid methyl esters comprises a mixture of coconut fatty acid methyl esters.--

--15. (New) The process according to claim 14, wherein the mixture of coconut fatty acid methyl esters comprises lauric acid methyl esters and myristic acid methyl esters.--

--16. (New) The process according to claim 15, wherein the lauric acid methyl esters are present in an amount of from 45 to 51% by weight, and the myristic acid methyl esters are present in an amount of from 16.5 to 18.5% by weight.--

--17. (New) The process according to claim 11, wherein the mixture of C<sub>6-22</sub> fatty acid methyl esters comprises a mixture of palm kernel fatty acid methyl esters.--

--18. (New) The process according to claim 17, wherein the mixture of palm kernel fatty acid methyl esters comprises lauric acid methyl esters, myristic acid methyl esters and oleic acid methyl esters.--

--19. (New) The process according to claim 18, wherein the lauric acid methyl esters are present in an amount of about 50 % by weight.--

--20. (New) The process according to claim 11, wherein the mixture of C<sub>6-22</sub> fatty acid methyl esters comprises a mixture of palm oil fatty acid methyl esters.--

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--21. (New) The process according to claim 20, wherein the mixture of palm oil fatty acid methyl esters comprises palmitic acid methyl esters, oleic acid methyl esters and linoleic acid methyl esters.--

--22. (New) The process according to claim 21, wherein the palmitic acid methyl esters and the oleic acid methyl esters are each present in an amount of from about 41 to about 42 % by weight.--

--23. (New) The process according to claim 11, wherein the mixture of C<sub>6-22</sub> fatty acid methyl esters comprises a mixture of coconut fatty acid methyl esters, palm kernel fatty acid methyl esters, and palm oil fatty acid methyl esters.--

--24. (New) The process according to claim 23, wherein the coconut fatty acid methyl esters, the palm kernel fatty acid methyl esters, and the palm oil fatty acid methyl esters are present in a ratio by weight of 1:1:1.--

--25. (New) A lubricant composition for wool fiber comprising: a mixture of C<sub>6-22</sub> fatty acid methyl esters consisting essentially of esters derived from fatty acids selected from the group consisting of coconut fatty acids, palm kernel fatty acids, palm oil fatty acids, and mixtures thereof, and emulsifiers.--

--26. (New) The lubricant composition according to claim 25, wherein the mixture of C<sub>6-22</sub> fatty acid methyl esters is present in an amount of from 60 to 80% by weight, based on the composition.--

--27. (New) The lubricant composition according to claim 25, wherein the mixture of C<sub>6-22</sub> fatty acid methyl esters consists essentially of a mixture of coconut fatty acid methyl esters, palm kernel fatty acid methyl esters, and palm oil fatty acid methyl esters.--

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--28. (New) The lubricant composition according to claim 27, wherein the coconut fatty acid methyl esters, the palm kernel fatty acid methyl esters, and the palm oil fatty acid methyl esters are present in a ratio by weight of 1:1:1.--

Please cancel claims 1-10, without prejudice.

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**REMARKS**

Claims 11-28 are currently pending in the instant application.

The Specification has been amended to delete the original section headings and to insert the preferred section headings pursuant to 37 C.F.R. §1.77. A new Title of the Invention has been inserted. An Abstract of the Disclosure has been added on a separate sheet following the claims. It is submitted that the amendments to the Specification made herein introduce no new matter. All of the amendments to the Specification constitute deletions of original section headings and/or paragraphs, and insertions or additions of new section headings and/or paragraphs. Accordingly, pursuant to 37 C.F.R. §1.121(b)(1)(iii), no separate page captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE" is necessary. A separate page containing a clean copy of the Abstract of the Disclosure has been added for the Examiner's convenience. Entry of the amendments to the Specification made herein is therefore proper and respectfully requested.

Original claims 1-10 have been canceled and replaced with new claims 11-28 solely for the purpose of improving clarity and grammar, which may suffer in translation, and not for any reason which relates to the statutory requirements for a patent. New claims 11-28 have not been added in response to any rejection, nor in anticipation of any rejection. Applicants respectfully submit that the scope of new claims 11-28 generally corresponds to the scope of original claims 1-10, and that new claims 11-28 are no narrower than original claims 1-10. Furthermore, although a moot point in view of their cancellation, Applicants respectfully submit that original claims 1-10 satisfied the requirements of 35 U.S.C. §112, as filed. New claims 11-28 are supported by the claims as originally filed and in the Specification, for example, at page 3, line 20, through page 5, line 15; and in the Examples. No new matter has been introduced. All of the amendments to the Claims constitute cancellation of original claims and the addition of new claims. Accordingly, pursuant to 37 C.F.R. §1.121(c)(1)( ii), no separate page captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE" is necessary. Entry is therefore proper and respectfully requested.

**Preliminary Amendment of U.S. National Stage for International Application  
PCT/EP99/07475 filed October 6, 1999**

Prompt examination of the instant application in view of the amendments made  
herein is respectfully requested.

Respectfully submitted,

**WOLFGANG BECKER, et al.**

April 16, 2001  
(Date)



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## ABSTRACT OF THE DISCLOSURE

Lubrication of wool fibers for combed wool sliver production, via contacting of the wool fibers with a lubrication composition including a mixture of C<sub>6-22</sub> fatty acid methyl esters based on fatty acids selected from the group consisting of coconut fatty acids, palm kernel fatty acids, palm oil fatty acids, and mixtures thereof, is disclosed.

## Lubricant for combed sliver production

The present application relates to the use of fatty acid methyl esters of vegetable origin as 5 smoothers in lubricants for combed wool sliver production, a lubricant for combed sliver production and a process for lubricating wool in combed sliver production.

Worsted or combed yarn spinning is a way of 10 producing high quality yarn from staple fibers. The staple fibers used are mainly wool and blends of wool with PES, PAN or other synthetic fibers. The yarns are processed as single or folded yarn into textile fabrics. Before the wool which is to be processed into 15 worsted yarn is actually spun, it has to undergo an intensive washing operation to remove organic and inorganic impurities in order that trouble-free processing in spinning may be ensured. After washing, the wool is dried. The removal of fiber concomitants, 20 especially wool wax and fats, alters the static and dynamic friction properties of the wool to a substantial extent, so that the further processing of the wool, especially under conditions of intensive fiber-fiber and fiber-metal friction, is extremely 25 problematical.

The friction properties altered during the washing of the wool are distinctly ameliorated by lubricating the dried wool. The wool is then further processed by carding, i.e. the production of a fiber 30 assembly from the pretreated staple fibers. It is especially during this processing stage that the wool fiber material is severely stressed by fiber-metal friction. This stress has the effect of reducing the mean staple length of the wool (hauteur). To counteract 35 this staple shortening, the wool has to be treated with a suitable lubricant before carding. The wool which is present after carding as a card sliver or after combing as a combed sliver is then spun by repeated doubling,

drafting and subsequent ring spinning into a fine, regular yarn in the worsted-spinning process.

Lubricating is a key operation in combed sliver production, since an increased fraction of short fibers as a result of inadequate lubricating leads to a reduction in the yield of combed sliver and also to adverse effects on combed sliver strength, for example. These losses have appreciable economic repercussions. For instance, a yield improvement of just 0.3% for a typical large combed sliver producer having an annual output of 60 000 t of combed wool sliver will yield an additional 180 t of sales product. This amounts to increased profits of more than 1 million deutschmarks, depending on the prices at the time. World production of combed sliver amounts to about 1.5 million t a year. Accordingly there continues to be a demand for improved lubricants for combed sliver production.

Combed sliver production lubricants are generally used as aqueous emulsions of smoothers or as the neat products. Known smoothers apart from mineral oils include in particular fatty acid polyglycol esters and also pure fatty acid esters (cf. Handbuch der Textilhilfsmittel, A. Chwala, V. Anger, Weinheim 1997, pages 314 to 320 and "Die Bedeutung der Schmälze und der Avivage bei der Kammgarnherstellung", W. Becker, in textil praxis international, October 1990). These smoothers are customarily processed in combination with emulsifiers into a lubricant that is preferably applied to the wool fibers before carding.

Commonly assigned EP 587 601 B1 discloses that fatty acid methyl esters are useful lubricants in the production of woolen yarns. By way of example the document discloses the use of esters based on animal fatty acid mixtures, especially of tallow fatty acids, as smoothers in lubricants for woolen yarn spinning. Woolen yarn spinning, then, has different demands on the lubricant to combed sliver production because of the different further processing of the fibers. In both processes, the wool is carded in the first percent

[sic] step (after washing, dyeing, etc.), but both the machinery and the production goal are appreciably different in combed sliver production to woolen yarn spinning. Worsted yarns are spun from fine wools via a 5 combed sliver as an intermediate stage. Woolen yarns, in contrast, are immediately spun after carding from the rovings produced on the woolen yarn card. The differences in the products are contrasted in the following table:

10

	<b>Worsted yarn</b>	<b>Woolen yarn</b>
Surface structure	smooth	rough, mossy
End use	fine outerwear yarns	coarse, robust outerwear yarns, carpet yarns
Yarn count	Nm 20-100 (fine)	Nm 0.5-20 (coarse)
Yarn regularity	high	relatively low

15

Nor did a use of the methyl esters based on - animal - tall oil fatty acids exemplarily disclosed in EP 587 601 B1 lead to an improvement in combed sliver production. But it was found that, surprisingly, the use of fatty acid methyl esters of selected fatty acid mixtures as smoothers leads to a distinct reduction in the fraction of short staple in the carding of wool fibers.

20

A first embodiment claimed is the use of C<sub>6-22</sub>-fatty acid methyl esters of vegetable raw materials as smoothers in lubricants for the production of combed wool slivers.

25

The fatty acid methyl esters used according to the invention are commercially available products which are prepared by the well known esterification of the free fatty acid or by transesterification of fatty acid triglycerides with methanol, usually in the presence of acidic catalysts. The invention uses exclusively fatty acid methyl esters prepared by transesterification of the natural triglycerides from vegetable sources such as coconut oil, soybean oil, rapeseed oil, palm oil or

5 palm kernel oil. The as-prepared methyl esters may be used without further processing, after distillative processing or else after hydrogenation of the unsaturated fractions. Particular preference is given to the use of such fatty acid methyl esters as have been prepared on the basis of coconut fatty acids, palm kernel fatty acids, palm oil fatty acids and especially mixtures thereof.

10 As well as the smoothers from vegetable raw materials, it is preferable to use emulsifiers and further customary additives.

15 Coconut fatty acids predominantly include mixtures of lauric acid and myristic acid. Cocoa fatty acid typically includes 0.2 to 1% by weight of hexanoic acid, 5.4 to 8.0% by weight of octanoic acid, 6.5 to 8.5% by weight of decanoic acid, 45.0 to 51.0% by weight of lauric acid, 16.5 to 18.5% by weight of myristic acid, 9.0 to 10.5% by weight of palmitic acid, 2.0 to 2.3% by weight of stearic acid, 0.2 to 0.4% by weight of behenic acid and 8.0 to 10.0% by weight of oleic acid and also 0.7 to 1.0% by weight of linoleic acid.

20 25 Palm kernel fatty acids typically have the following composition: caproic, caprylic, capric acid 9% by weight, lauric acid 50% by weight, myristic acid 15% by weight, palmitic acid 7% by weight, stearic acid 2% by weight, oleic acid 15% by weight, linoleic acid 1% by weight.

30 Palm fatty acids typically have the following composition: myristic acid 2% by weight, palmitic acid 42% by weight, stearic acid 5% by weight, oleic acid 41% by weight and linoleic acid 10% by weight.

35 According to the invention, these methyl ester mixtures are used as smoothers in lubricants, the lubricants including 50 to 95% by weight, especially 60 to 80% by weight, of the above-described fatty acid methyl esters.

This application accordingly further provides lubricants for combed sliver production, including

- a) 60 to 80% by weight of C<sub>6-22</sub> fatty acid methyl esters of vegetable raw materials as smoothers
- b) 5 to 30% by weight of emulsifiers
- c) 0 to 10% by weight of additives

5 The lubricants of the invention preferably include as smoothers fatty acid methyl esters based on coconut fatty acid, palm kernel fatty acid or palm oil fatty acids and mixtures thereof. Preference is given to lubricants that include exclusively methyl esters  
10 based on coconut fatty acid or palm kernel fatty acid. But it is also preferable to use mixtures of methyl esters based on coconut fatty acid, palm kernel fatty acid or palm oil fatty acids, preference being given in particular to such mixtures where the three different  
15 methyl esters are present in an amount ratio of 1:1:1.

Useful additives for inclusion in the lubricants of the invention are corrosion inhibitors, antistats, adhesion promoters, bactericides, antioxidants, pH regulators and viscosity improvers.

20 Useful emulsifiers include nonionic, anionic and cationic emulsifiers, for example partial esters of di- and/or triglycerol, such as triglyceryl monooleate, alkoxyolated, preferably ethoxylated and/or propoxylated, fats, oils, C<sub>8-22</sub> fatty acids, C<sub>8-22</sub> fatty  
25 alcohols and/or C<sub>8-22</sub> fatty acid mono- and/or diethanolamides, such as optionally ethoxylated oleic acid mono- or diethanolamide, alkoxyolated, preferably ethoxylated, C<sub>8-22</sub> fatty acids whose OH group is replaced by a C<sub>1-4</sub> alkoxy group, alkali metal and/or  
30 ammonium salts of C<sub>8-22</sub> alkylsulfonates, alkali metal and/or ammonium salts of C<sub>8-22</sub> alkylsulfosuccinates, such as sodium dioctylsulfosuccinate, and/or amine oxides, such as dimethyldodecylamine oxide.

35 The viscosity of the lubricant may in principle be raised using triglycerides such as the relatively highly viscous rapeseed oil or polymeric compounds. German Patent DE 39 36 975 discloses coning oils containing fatty acid alcohol polymethacrylates to control sling-off. German Offenlegungsschrift

DE 39 24 160 discloses additives comprising carboxyl-free homo- and/or interpolymers of esters of acrylic acid and/or methacrylic acid having limiting viscosities  $[\eta]$  of less than 300, preferably 800, 5  $\text{ml g}^{-1}$ , measured at  $20^\circ\text{C}$  in tetrahydrofuran. The reported limiting viscosities  $[\eta]$  are customary in the art and are described for example in Vollmert, "Grundriß der Makromolekularen Chemie", Volume III, pages 55 to 61, VErlag E. Vollmert, Karlsruhe 1982. 10 Owing to their high limiting viscosity, the additives described improve the fiber-drawing and/or adhesive performance of oils and/or fats.

The lubricants of the invention are prepared in a conventional manner by mixing the stated constituents 15 in the stated amounts with each other in any order at temperatures between 18 and  $25^\circ\text{C}$ .

Lubricants may be used neat or preferably in the form of aqueous emulsions. This application further provides a process for lubricating wool in combed 20 sliver production, wherein the wool is treated with an aqueous emulsion including an active ingredient content - based on the weight of the wool - of 0.25 to 0.60% by weight of lubricant as per the above description before carding. The textile fibers are present as staple.

25

#### Examples

Two inventive carding lubricants which contain fatty acid methyl esters of vegetable raw materials 30 were tested. The lubricants were prepared by simply stirring the raw materials together. The washed wool for the tests was half lubricated with a standard textile auxiliary based on tallow fatty acid methyl ester. The rest of the wool staple was finished with 35 the product of the invention. Product was applied in each case at 0.5% on weight of wool.

The wool was subsequently carded, drawn out, combed and drafted, and the combed sliver yield of the product (B) lubricated according to the invention

compared with the yield of a combed sliver (A) produced in standard fashion. The values mentioned under A and B constitute the weight difference calculated according to the formula:

5

$$\text{Yield (\%)} = \frac{\text{combed sliver weight [kg]} \times 100}{\text{washed staple weight [kg]}}$$

10 between washed staple weight and ready-produced combed sliver. The yield improvement in % represents the improvement in yields of combed sliver (difference A, B) produced using the product prepared according to the invention. It can be seen that the lubricants of the invention provide a higher yield of finished products than obtained on using existing products based on 15 animal fatty acid esters.

**Table 1: Composition of lubricants according to the invention:**

Example	Amounts [in % by weight]	Ingredients
1	58.00	Coconut/palm kernel/palm oil fatty acid methyl ester
	12.00	Coconut fatty acid diethanolamide
	10.00	Coconut fatty acid polyglycol ester
	5.00	EO/PO-polyglycol, molar mass: 2 500
	5.00	Sodium alkanesulfonate
	10.00	Water
2	80.00	Coconut/palm kernel/palm oil fatty acid methyl ester
	10.00	Coconut fatty alcohol + 5 EO
	5.00	Sodium alkanesulfonate
	5.00	Diethanolamine

**Table 2: Results of application tests:**

	Application amount in %	Finished product amount in % of raw material used		
		Test 1	Test 2	Test 3
Wool quality (length mm/diameter $\mu$ )		64/21	68/21.6	72.2/21.8
A	0.5	88.68	90.16	88.70
B	0.5	90.64	90.70	89.70
<b>Yield improvement in %</b>		<b>1.96</b>	<b>0.54</b>	<b>1.00</b>

## Claims

1. Use of C<sub>6-22</sub>-fatty acid methyl esters of vegetable raw materials as smoothers in lubricants for the production of combed wool slivers.
- 5 2. Use of claim 1, characterized in that fatty acid methyl esters based on coconut fatty acids, palm kernel fatty acids, palm oil fatty acids or mixtures of these esters are used.
- 10 3. Use of claim 1 or 2, characterized in that the fatty acid methyl esters are used in amounts of 50 to 95% by weight, preferably 60 to 80% by weight, based on lubricant.
- 15 4. Use of claims 1 to 3, characterized in that the fatty acid methyl esters are used in combination with emulsifiers and additives.
5. A lubricant for combed sliver production, including
  - a) 60 to 80% by weight of C<sub>6-22</sub> fatty acid methyl esters of vegetable raw materials as smoothers
  - 20 b) 5 to 30% by weight of emulsifiers
  - c) 0 to 10% by weight of additives
6. The lubricant of claim 5, characterized in that the smoothers it includes are exclusively fatty acid methyl esters based on coconut fatty acids.
- 25 7. The lubricant of claim 5, characterized in that the smoothers it includes are exclusively fatty acid methyl esters based on palm kernel fatty acid.
8. The lubricant of claim 5, characterized in that the smoothers it includes are mixtures of fatty acid methyl esters based on coconut fatty acid, palm kernel fatty acid and/or palm oil fatty acid.
- 30 9. The lubricant of claim 8, characterized in that the smoothers it includes are mixtures of coconut fatty acid, palm kernel fatty acid and palm oil fatty acid in a weight ratio of 1:1:1.
- 35 10. A process for lubricating wool in combed sliver production, characterized in that the wool is treated with an aqueous emulsion including an active ingredient

content - based on the weight of the wool - of 0.25 to 0.60% by weight of lubricant as claimed in any of claims 5 to 9 before carding.

Type a plus sign (+) inside this box -

1

**DECLARATION FOR  
UTILITY OR DESIGN  
PATENT APPLICATION**

Declaration Submitted with Initial Filing      OR       Declaration Submitted after Initial Filing

Attorney Docket Number	H 3624 PCT/US
First Named Inventor	BECKER, Wolfgang
<i><b>COMPLETE IF KNOWN</b></i>	
Application Number	09/807,664
Filing Date	07/05/2001
Group Art Unit	
Examiner Name	

**As a below named inventor, I hereby declare that:**

**My residence, post office address, and citizenship are as stated below next to my name.**

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

## SPINNING OIL FOR PRODUCING COMBED SLIVER

**the specification of which**

*(Title of the Invention)*

is attached hereto

was filed on (MM/DD/YYYY) **10/06/1999** as United States Application Number or PCT International

**Application Number** **PCT/EP99/07475** and was amended on **(MM/DD/YYYY)** **(if applicable).**

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
198 47 497.0	DE	10/15/1998			X

Additional foreign application numbers are listed on a supplemental priority sheet attached hereto:

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.
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**Burden Hour Statement:** This form is estimated to take .4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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## DECLARATION

Page 2

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112.1 acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)
	PCT/EP99/07475	10/06/1999	

Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

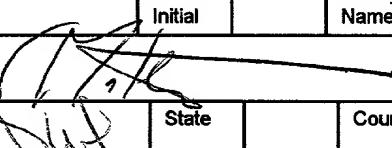
<input type="checkbox"/> Firm Name	<input type="text"/>	Customer Number or label	<input type="text"/>
OR			
<input checked="" type="checkbox"/> List Attorney(s) and/or agent(s) name and registration number below:			
Name	Registration Number	Name	Registration Number
John E. Drach Steven J. Trzaska	32,891 36,296	Aaron R. Ettelman Henry E. Millson, Jr.	42,516 18,980

Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

Please direct all correspondence to:		<input checked="" type="checkbox"/> Customer Number or label	<input type="text"/> 23657	OR	<input checked="" type="checkbox"/> Fill in correspondence address below
Name	Aaron R. Ettelman				
Address					
Address					
City	State	ZIP			
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:		<input type="checkbox"/> A petition has been filed for this unsigned							
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<input checked="" type="checkbox"/> Additional inventors are being named on supplemental sheet(s) attached hereto									

<b>DECLARATION</b>					<b>ADDITIONAL INVENTOR(S)</b> Supplemental Sheet				
Name of Additional Joint Inventor, if any:			<input type="checkbox"/> A petition has been filed for this unsigned inventor						
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Inventor's Signature					Date	<u>05/11/2001</u>			
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Post Office Address									
City	<u>41564 Kaarst</u>	State		Zip		Country	<u>Germany</u>	Applicant Authority	
Name of Additional Joint Inventor, if any:			<input type="checkbox"/> A petition has been filed for this unsigned inventor						
Given Name			Middle Initial		Family Name			Suffix e.g. Jr.	
Inventor's Signature					Date				
Residence: City			State		Country			Citizenship	
Post Office Address									
Post Office Address									
City		State		Zip		Country		Applicant Authority	
Name of Additional Joint Inventor, if any:			<input type="checkbox"/> A petition has been filed for this unsigned inventor						
Given Name			Middle Initial		Family Name			Suffix e.g. Jr.	
Inventor's Signature					Date				
Residence: City			State		Country			Citizenship	
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Post Office Address									
City		State		Zip		Country		Applicant Authority	
<input type="checkbox"/> Additional inventors are being named on supplemental sheet(s) attached hereto									